

REMARKS

Favorable reconsideration of the above-identified application is requested in view of the following remarks.

Claims 27-29 are newly added and Claims 1-15 remain canceled. Thus, Claims 16-29 are pending in this application, with Claims 16, 17, 22-24 and 26 being independent.

Claims 16, 17 and 20-26 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,292,583, hereinafter *Maruo*.

Maruo discloses an image information processing apparatus that is capable of detecting a defect or debris on a semiconductor wafer. Beginning in column 2, line 34, *Maruo* describes that a conventional optical microscope cannot be used for acquiring a detailed image of a wafer pattern and that now scanning electron microscopes are being used. However, an image produced by a scanning electron microscope contains more noise than an image produced by an optical microscope and an issue arises because the noise is often misinterpreted as being a defect or debris. Thus, a main objective of *Maruo* is to detect a defect on a device such as a silicone wafer from an unclear image produced by a scanning electron microscope (column 3, lines 7-8).

To accomplish that objective, *Maruo* employs a two dimensional Wavelet transform means, a binarization process means, and a Hough transform means (column 3, lines 26-42). Beginning in column 8, line 58 it is described that a two dimensional Wavelet transform is applied to an input image to obtain longitudinal line detection components and lateral line detection components. Each of these component groups has, at an edge portion, a Wavelet coefficient value having a

large absolute value, while the other portions are close to zero and have a small absolute value. Next, the image produced by the Wavelet transform is binarized in the longitudinal and lateral direction to create coefficient values of (1) at an edge portion and coefficient values of (0) at portions other than the edge portion. After the image is binarized, a Hough transform is applied to determine the presence and position of objects and lines. Through application of the Hough transform, the position and size of edge portions, e.g., defects, can be determined (column 9, lines 18-20).

As described in the Description of Prior Art section of the present specification, one application of the claimed subject matter concerns the detection of a specified pattern in currency, thereby providing a "mark" that is recognized and used to prevent copying of the currency with high-definition copiers. That is, when the specified pattern is detected, copying is forbidden. It is desired that recognition of the specified pattern be performed at high speeds, be precise, and be done with a simple device.

A claimed feature is generally directed toward detection of an image of a specified pattern and extraction of an image of a specified pattern included in the image with a combination of filters in a plurality of filters. This subject matter is generally included in at least Claims 16, 17, 22 and 23. The Official Action poses that *Maruo's* Wavelet transform discloses a plurality of filters. However, as described by *Maruo*, only one Wavelet transform is applied to an image in a longitudinal and lateral direction. In column 8, lines 60-63 it is described that "the two dimensional Wavelet transform S1 is applied to an input image to obtain longitudinal line detection components and lateral line detection components." One

two dimensional Wavelet transform S1 is not a plurality of filters as defined by the claims.

Another claimed feature is generally concerned with extraction of a specified pattern with the combination of filters in the plurality of filters. Claims 16, 17, 22 and 24 define combinations generally including this feature. As characterized in the Official Action, the Wavelet transform (alleged plurality of filters) is not used to detect an image of a specified pattern, but rather to smooth and accentuate edge portions of the image to help identify defects. The edges of the defects that *Maruo* obtains through use of the Waveform transfer are not a specified pattern as defined by the claims.

Also, another claimed feature relates to determination of a position and rotation of the specified pattern. This subject matter is presently referred to in Claims 16, 17, 22 and 23. *Maruo* does not disclose determining the position and rotation of a specified pattern.

Claim 24 defines a *specified* pattern detection apparatus. A binarizer binarizes input image data to provide bi-level image data that is stored by a storage device. A partial image extractor extracts *specified* partial images in the bi-level image stored in the storage device with a filter for conversion. A gain calculator calculates and stores information for each pixel in the bi-level image, in which the specified partial images are extracted, with a gain filter, the information representing a distance from each pixel to the specified partial image. The Official Action proposes that the feature directed toward a gain calculator that calculates and stores information for each pixel is disclosed in column 6, lines 5-20 and equations 1 and 2

of *Maruo*. However, this portion of *Mario* is concerned with Hough transformation, not detection of a specified image.

Claim 26 defines a method comprising a combination of features including calculating and storing information for each pixel in a bi-level image, in which *specified* partial images are extracted, with a gain filter, information representing a distance from each pixel to a specified partial image. Similarly to Claim 23, *Maruo* does not disclose these features.

Claims 27-29 are newly added and are generally directed toward a plurality of detection filters, each detection filter performing detection in a partial area of the image, an image being detected when a preset combination of filters detects a portion of the pattern.

Claims 18 and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Maruo*. Claims 18 and 19 depend from Claims 16 and 17 respectively, and are allowable for at least the same reasons and also because they define features that additionally define over the cited disclosure.

For the reason stated above, Claims 16, 17, 22-24 and 26-29 are allowable. Claims 20, 21 and 25 depend from allowable independent claims and are allowable for at least the same reasons, and also because they define features that further distinguish over the cited disclosure.

It is therefore requested that all the rejections be withdrawn and that this application be allowed in a timely manner.

In the event that there are any questions concerning this Amendment, or the application in general, the Examiner is respectfully urged to telephone the undersigned attorney so that prosecution of the application may be expedited.

Respectfully submitted,

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